Review Form 3

Journal Name:	**Journal of Scientific Research and Reports**
Manuscript Number:	**Ms_JSRR_124607**
Title of the Manuscript:	**African fan palm reinforced concrete beams subjected to two-point symmetrical loading.**
Type of the Article	

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PART 1: Review Comments

Compulsory REVISION comments	**Reviewer's comment**	**Author's Feedback** *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.	This manuscript is significant for the scientific community as it explores the potential of eco-friendly alternatives, specifically African fan palm, to steel as reinforcement in concrete beams. The study provides comprehensive experimental and theoretical insights into the flexural behavior, crack propagation, and failure modes of palm-reinforced beams, which are crucial for advancing sustainable construction practices. The use of local, natural materials like the fan palm aligns with global efforts to reduce carbon emissions associated with steel production. I appreciate how this research challenges conventional practices, offering a promising alternative for more environmentally conscious structural designs	
Is the title of the article suitable? **(If not please suggest an alternative title)**	The title of the article, *"African fan palm reinforced concrete beams subjected to two-point symmetrical loading,"* is clear but could be improved to better reflect the scope and findings of the research. While it accurately describes the key material (African fan palm) and the testing method (two-point symmetrical loading), it could highlight the broader significance of the study, such as the potential environmental benefits or the comparison with steel reinforcement. A possible revision could be: *"Flexural Behavior and Environmental Impact of African Fan Palm Reinforced Concrete Beams under Symmetrical Loading Conditions."*	
Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.	The abstract of the article provides a concise overview of the experimental setup, materials used (African fan palm and steel reinforcement), and the key findings related to flexural strength, cracking behavior, and failure modes. However, it could be improved in a few ways to make it more comprehensive and informative for readers. Suggestions for Improvement: 1. Add Specific Outcomes or Implications: The abstract does not explicitly mention the environmental significance of using African fan palm as a substitute for steel reinforcement, which is a major contribution of the study. Including this point would make the abstract more aligned with the overall objectives of the research. 2. Clarify the Comparative Analysis: The comparison between African fan palm and steel reinforcement is mentioned briefly, but the performance metrics (like crack moment or failure load) could be highlighted more clearly. This would help readers understand the practical implications of the findings. 3. Simplify Technical Terminology: While technical terms are necessary, the abstract could be slightly simplified for broader readability. For instance, the detailed percentages of reinforcement and tensile ratios might be moved to the main text, keeping the abstract focused on key findings and implications. 4. Add a Concluding Sentence: The abstract would benefit from a concluding statement that emphasizes the potential applications of the findings or the next steps for future research.	
Are subsections and structure of the manuscript appropriate?	The manuscript's subsections and structure appear appropriate for presenting experimental research. However, there are a few areas where the structure could be refined or improved to enhance clarity and flow. Below are my observations and suggestions: Strengths: 1. Logical Flow: The manuscript follows a logical structure, starting from the introduction, moving through the experimental program, and concluding with test results and theoretical analysis. This is a clear and systematic approach for presenting research findings. 2. Detailed Experimental Program: The description of the materials, beam properties, and testing procedures is thorough, making it easy for readers to understand how the experiments were conducted. Suggestions for Improvement: 1. Introduction: The introduction could better emphasize the environmental impact of using African fan palm as a substitute for steel. While the environmental benefits are touched upon, they are not prominently featured early on, which could set a stronger context for the research.	

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	2. Experimental Program (Subsections 2.0 - 2.1): The detailed subsections within the experimental program are appropriate, but the descriptions of materials and testing methods might benefit from being more concise. Also, grouping all material descriptions into a single subsection might help streamline this section (e.g., "Materials and Methods"). 3. Theoretical Analysis: This section is comprehensive but could be more structured by breaking it down into smaller, clearer subsections. For example, dividing the analysis into categories such as “Cracking Loads,” “Failure Loads,” and “Tensile Ratios” could improve readability. Providing clear section headings for each type of analysis would guide the reader better. 4. Results and Discussion: The test results are presented with a lot of data, but the discussion of the results could benefit from clearer interpretation. This section should not just present results but also explain their significance more thoroughly. Consider adding a “Discussion” section that links the experimental findings to practical applications, such as sustainable construction, and compares them with previous studies. 5. Conclusions: The conclusions are solid, but they would benefit from being more explicit about the broader implications of the study, such as how the findings contribute to sustainable construction practices and how future research can build on these results. 6. Figures and Tables: Ensure all figures and tables are referenced properly within the text and 7. positioned near the relevant sections. Sometimes, figures can be clustered at the end, making it difficult for readers to follow along.	
Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.	This manuscript is scientifically robust and technically sound due to its rigorous experimental design and comprehensive analysis of the behavior of African fan palm-reinforced concrete beams. The study uses a well-established four-point loading system to test the flexural strength and deformation characteristics, ensuring accurate and reproducible results. Additionally, the comparison between African fan palm and steel reinforcement is grounded in theoretical and experimental frameworks, providing a solid basis for the findings. The manuscript also applies appropriate safety factors and design codes, such as the Indian Standard and BS 8110, further reinforcing the scientific correctness of the study	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. **:**	The references in the manuscript are generally sufficient and cover a range of key studies related to the use of natural fibers, such as African fan palm, bamboo, and other natural materials, for concrete reinforcement. However, a few improvements can be made to ensure that the references are more recent and comprehensive: Strengths: 1. Diversity of Sources: The manuscript includes a mix of sources related to natural reinforcement materials, environmental impacts, and structural behavior, which adds depth to the study. 2. Use of Standards: The inclusion of design standards like IS 456:2000, BS 8110, and ACI 318:2014 demonstrates adherence to established guidelines, which is crucial for scientific and practical validation. Areas for Improvement: 1. Recency of References: While the manuscript includes several relevant studies, many of the cited references are older, with only a few post-2020 references. Incorporating more recent research (from 2020 onwards) would enhance the relevance and ensure the manuscript is up-to-date with current trends and developments in sustainable construction and material science. 2. Additional References on Sustainability: Since the manuscript touches on the environmental benefits of using African fan palm as an alternative to steel, more recent references discussing sustainable construction practices, carbon reduction, and alternative reinforcements could be added to support these claims more strongly. Suggested Additional References: 1. Recent studies on sustainable construction materials and their carbon footprint, which could provide a broader context for the environmental impact of using African fan palm as reinforcement. 2. More recent research (post-2020) on natural fiber reinforcements in concrete to strengthen the discussion around the use of alternative materials.	

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Minor REVISION comments **Is the language/English quality of the article suitable for scholarly communications?**	The language and English quality of the article are generally suitable for scholarly communication, but there are a few areas where improvements could enhance readability and clarity: **Areas for Improvement:** 1. **Sentence Structure**: Some sentences are quite long and could be broken into shorter, more concise statements to improve readability. Simplifying complex sentence structures would make the manuscript easier to follow, especially for international readers. 2. **Repetition**: In certain sections, there is some repetition of ideas or phrases, particularly in the results and discussion sections. Removing redundancy would make the writing more focused and impactful. 3. **Clarification of Technical Terms**: While the technical terms are appropriate, it may be helpful to define or explain some of them briefly for readers who may not be familiar with all the specific jargon, especially in sections dealing with specific testing methods or materials.	
Optional/General comments	This manuscript presents an important study on the use of African fan palm as a natural reinforcement material in concrete beams, offering a sustainable alternative to conventional steel reinforcement. The research is timely, addressing the global demand for eco-friendly construction materials, and contributes significantly to the field of structural engineering by exploring the mechanical properties and flexural behavior of fan palm-reinforced beams. The experimental setup is robust, with clear details on the testing methods and theoretical analysis. The manuscript also effectively compares the performance of fan palm with steel reinforcement, providing valuable insights into cracking moments, failure loads, and the overall behavior of the beams under load. **Strengths:** • The study is well-structured and presents detailed experimental procedures that can be replicated by other researchers. • The comparison between fan palm and steel reinforcement is thorough and grounded in both experimental and theoretical analysis. • The paper contributes to sustainability by proposing an alternative to steel, which could significantly reduce carbon emissions in the construction industry. **Areas for Improvement:** • The environmental significance of using fan palm as reinforcement could be emphasized more in the introduction and conclusion sections. • Some sections, particularly the results and discussion, could be made more concise by reducing redundancy and focusing on key findings. • The abstract could be refined to better highlight the broader implications and practical applications of the study. • The references could be updated to include more recent research, particularly on sustainability and natural fiber reinforcements.	

PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

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